

comprising a wild type RNA polymerase wherein at least one amino acid present in a loop between helix Y and helix Z and/or a loop between helix Z and helix AA in the wild type RNA polymerase has been modified to enhance the ability of the wild type polymerase to incorporate 3'-deoxyribonucleotides and derivatives thereof in comparison with the corresponding wild type RNA polymerase wherein the modified wild type RNA polymerase has a further substitution, insertion or deletion of an amino acid in the modified wild type RNA polymerase and wherein the further substitution, insertion, or deletion does not substantially affect the RNA polymerase activity.

12. (Twice Amended) An RNA polymerase comprising an RNA polymerase of claim 11 with a further substitution, insertion, or deletion of an amino acid other than the amino acid residues 644 and/or 667 of SEQ ID NO:2, and wherein the further substitution, insertion, or deletion does not substantially affect the RNA polymerase activity.

15. (Three Times Amended) An RNA polymerase comprising an RNA polymerase of claim 13 with a further mutation wherein the 665th amino acid residue, leucine, of SEQ ID NO:2 of the wild type T7 RNA polymerase has been replaced with proline.

17. (Twice Amended) An RNA polymerase comprising an RNA polymerase of claim 16 with a further mutation wherein the 665th amino acid residue, leucine, of SEQ ID NO:2 of the wild type T7 RNA polymerase has been replaced with proline.

19. (Twice Amended) An RNA polymerase comprising an RNA polymerase of claim 18 with a further mutation wherein the RNA polymerase from T3 phage has a further substitution, insertion, or deletion of amino acid other than the amino acid residues 645 and 668 of SEQ ID NO:14, and wherein the further substitution, insertion, or deletion does not substantially affect the RNA polymerase activity.

21. (Twice Amended) An RNA polymerase comprising an RNA polymerase of claim 20 with a further mutation wherein the RNA polymerase from K11 phage has a further substitution, insertion, or deletion of amino acid other than the amino acid residues 664-669 and 690 of SEQ ID NO:15, and wherein the further substitution, insertion, or deletion does not substantially affect the RNA polymerase activity.

23. (Twice Amended) An RNA polymerase comprising an RNA polymerase of claim 22 with a further mutation wherein the RNA polymerase from SP6 phage has a further substitution, insertion, or deletion of an amino acid other than the amino acid residues 633-638 and 670 of SEQ ID NO:16, and wherein the further substitution, insertion, or deletion does not substantially affect the RNA polymerase activity.

26. (Amended) An RNA polymerase consisting of a wild type RNA polymerase wherein at least one amino acid present in a region of the wild type RNA polymerase corresponding to amino acid residues 641-667 of SEQ ID NO:2 of RNA polymerase from

T7 phage has been replaced with tyrosine to enhance the ability of the RNA polymerase to incorporate 3'-deoxyribonucleotides and derivatives thereof into a polynucleotide in comparison with the corresponding wild type RNA polymerase.

28. (Amended) An RNA polymerase comprising a wild type RNA polymerase wherein at least one amino acid present in a region of the wild type RNA polymerase corresponding to amino acid residues 641-667 of SEQ ID NO:2 of RNA polymerase from T7 phage has been modified to enhance the ability of the RNA polymerase to incorporate 3'-deoxyribonucleotides and derivatives thereof into a polynucleotide in comparison with the corresponding wild type RNA polymerase wherein the modified wild type polymerase has a further substitution, insertion, or deletion of an amino acid in the modified wild type RNA polymerase which does not substantially affect the RNA polymerase activity.